

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application No.: N/A

Filing Date: Herewith

Applicant: Takamitsu HIGUCHI

Group Art Unit: N/A

Examiner: N/A

Title: METHOD OF MANUFACTURING POTASSIUM NIOBATE  
SINGLE CRYSTAL THIN FILM, SURFACE ACOUSTIC WAVE  
ELEMENT, FREQUENCY FILTER, FREQUENCY OSCILLATOR,  
ELECTRONIC CIRCUIT, AND ELECTRONIC APPARATUS

Attorney Docket: 9319G-000747

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Director of the United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450

**INFORMATION DISCLOSURE STATEMENT**

Sir:

Pursuant to 37 C.F.R. §§ 1.56, 1.97 and 1.98, Applicant hereby submits an Information Disclosure Statement for consideration by the Examiner.

**I. LIST OF PATENTS, PUBLICATIONS, AND OTHER INFORMATION**

The patents, publications and other information requested to be considered by the Office (except unpublished U.S. patent applications) are listed on Form 1449 attached hereto.

**II. COPIES**

A. ☒ Submitted herewith is a legible copy of (i) each U.S. patent application publication and U.S. and foreign patent; (ii) each publication or that portion which caused it to be listed; (iii) for each cited pending U.S. application, the application specification including the claims, and any drawing of the application which caused it to be listed including the claims directed to that portion; and (iv) all other information or that portion which caused it to be listed.

B. ☐ Any patents, publications or other information which are listed on Form 1449 or on the copies of PTO-892, but which are not enclosed herewith, were previously cited by or submitted to the PTO in one of the following applications which has been relied upon for an earlier filing date under 35 U.S.C. § 120:

U.S. Serial Number

U.S. Filing Date

C. ☐ Because the present application was/is being filed after June 30, 2003, no copies of the U.S. patents or U.S. patent application publications which are listed on the attached Form 1449 are enclosed pursuant to the waiver of 37 C.F.R. § 1.98(a)(2)(i). Any foreign patent documents or non-patent literature listed on the attached Form 1449 are enclosed herewith.

D. ☐ This is a PCT application in the entry of the National Phase in the United States. A copy of the International Search Report is attached for the Examiner's information. The documents listed on the International Search Report are listed on the attached Form 1449 for consideration by the Examiner and for listing on any patent resulting from this application. Since the International Search report was from the US, EPO, or JPO search authorities, copies of these references should have been supplied to the USPTO under the trilateral agreement and are believed to be in the file of the above-identified application. (MPEP 1893.03(g).)

III. CONCISE EXPLANATION OF THE RELEVANCE (check at least one box)

A. ☒ Except as may be indicated below in (B), all of the patents, publications or other information are in the English language (concise explanation not required).

B. ☒ A concise explanation of the relevance of each patent, publication or other information listed that is not in the English language is as follows (see 37 C.F.R. § 1.98(a)(3)):

1. ☐ See the attached foreign patent office communication from a counterpart foreign application:

2. ☒ English translations are provided: as indicated on Form-1449.

3. ☒ Other: See Abstracts listed on Form-1449.

C. ☐ The following additional information is provided for the Examiner's consideration.

IV. CROSS REFERENCE TO RELATED APPLICATION(S)

A. ☐ The Examiner is advised that the following co-pending application(s) contain(s) subject matter that may be related to the present application. By bringing this(these) application(s) to the Examiner's attention, Applicant(s) does (do) not waive the confidentiality provisions of 35 U.S.C. § 122.

Serial No.

Filing Date

Art Unit

V. THIS IDS IS BEING FILED UNDER

A. ☒ **37 C.F.R. § 1.97(b):** (check only one box)

1. ☒ within three months of the filing date of a national application other than a continued prosecution application under § 1.53(d) (37 C.F.R. § 1.97(b)(1)). No fee or certification is required.

2. ☐ within three months of the date of entry of the national stage as set forth in § 1.491 in an international application (37 C.F.R. § 1.97(b)(2)). No fee or certification is required.

3. ☐ before the mailing of a first Office Action on the merits (37 C.F.R. § 1.97(b)(3)). No fee or certification is required.

4. ☐ before the mailing of a first Office Action after the filing of a request for continued examination under 37 C.F.R. § 1.114. No fee or certification is required.

B. ☐ **37 C.F.R. § 1.97(c):** (check only one box)

before the mailing date of either any Final Office Action under 37 C.F.R. § 1.113, a Notice of Allowance under 37 C.F.R. § 1.311, or an action that otherwise closes prosecution.

1. ☐ No certification; therefore, a fee in the amount of \$180.00 is required by 37 C.F.R. § 1.17(p).

2. ☐ See the certification below. No fee is required.

C. ☐ **37 C.F.R. § 1.97(d):**

after the mailing date of either a Final Office Action under 37 C.F.R. § 1.113 or a Notice of Allowance under 37 C.F.R. § 1.311, yet on or before payment of the issue fee.

1. ☐ See the certification below. A fee in the amount of \$180.00 is required by 37 C.F.R. § 1.17(p).

VI. CERTIFICATION UNDER 37 C.F.R. § 1.97(e): (check only one box)

The undersigned hereby certifies that:

A. ☐ each item of information contained in this IDS was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this IDS (See 37 C.F.R. § 1.97(e)(1)). See further statement under 37 C.F.R. 1.704(d) below in section VII, if applicable; or

B. ☐ no item of information contained in this IDS was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in this IDS was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this IDS (See 37 C.F.R. § 1.97(e)(2)).

C. ☐ some of the items of information were first cited in a communication from a foreign patent office. As to this information, the undersigned hereby certifies that each item of information contained in this IDS was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this IDS. As to the remaining information, the undersigned hereby certifies that no item of this remaining information contained in this IDS was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in this IDS was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this IDS.

VII. STATEMENT UNDER 37 C.F.R. 1.704(d)

The undersigned hereby states that:

☐ each item of information contained in this IDS was cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in 37 C.F.R. § 1.56(c) more than thirty days prior to the filing of this IDS.

VI. PAYMENT OF FEES (check only one box)

A. ☐ A check in the amount of \$180.00 is enclosed for the above identified fee.

B. ☐ Please charge Deposit Account No. 08-0750 in the amount of \$180.00 for the above-indicated fee. A duplicate copy of this paper is attached.

The above references are being cited only in the interest of candor and without any admission that they constitute statutory prior art, contain matter which anticipates the invention, or which would render the same obvious, either singly or in combination, to a person of ordinary skill in the art. Furthermore, this Information Disclosure Statement shall not be construed as a representation that a search has been made.

If it is determined that this IDS has been filed under the wrong rule, the PTO is requested to consider this IDS under the proper rule (with a petition if necessary) and charge the appropriate fee to Deposit Account No. 08-0750.

Please charge any additional fees or credit any overpayment pursuant to 37 C.F.R. § 1.16 or § 1.17 to Deposit Account No. 08-0750.

Respectfully submitted,

Dated: March 24, 2004

By: 

G. Gregory Schivley  
Reg. No. 21,382

Harness, Dickey & Pierce, P.L.C.  
P.O. Box 828  
Bloomfield Hills, Michigan 48303  
(248) 641-1600

GGS/msm

<p>FORM HDP-1449 (Based on Form PTO-1449)</p> <p>PATENT AND TRADEMARK OFFICE</p> <p><b>INFORMATION DISCLOSURE CITATION</b></p> <p>(Use several sheets if necessary)</p> <p>Sheet 1 of 1</p>	ATTORNEY DOCKET NO.	SERIAL NO.
	9319G-000747	N/A
	APPLICANT	
	Takamitsu HIGUCHI	
	FILING DATE	GROUP
Herewith	N/A	

U.S. PATENT DOCUMENTS						
Ref. Desig.	Examiner's Initials	Document Number	Date	Name	Class/ Subclass	(If appropriate) Filing Date
1.		6,203,860	Mar/2001	Kawai, et al.		
2.		5,824,419	Oct/1998	Kawai, et al.		

FOREIGN PATENT DOCUMENTS						
Ref. Desig.	Examiner's Initials	Document Number	Date	Country	Class/ Subclass	Translation * Yes No
1.		2001-196892	July/2001	Japan		Abstract
2.		2001-185988	July/2001	Japan		Abstract
3.		2001-068964	Mar/2001	Japan		Abstract
4.		10-065488	Mar/1998	Japan		Abstract

\*One or more of the English translation documents submitted herewith may be Abstracts only or partial machine created translations from the Japanese Patent Office. As such, the submitter does not necessarily vouch for their accuracy. Additional information may be obtained from the Japanese Patent Office web site at [www.jpo.go.jp](http://www.jpo.go.jp).

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, etc.)		
Ref. Desig.	Examiner's Initials	
1.		Ryuichi KOMATSU, et al. "Growth and Characterization of Potassium Niobate (KNbO <sub>3</sub> ) Crystal from An Aqueous Solution", Jpn. J. Appl. Phys, Vol. 40 (2001) pp. 5657-5659.
2.		HiroYuki ODAGAWA, et al. "Superhigh Electromechanical Coupling and Zero-Temperature Characteristics of KNbO <sub>3</sub> and Wide Band Filter Applications", Jpn. J. Appl. Phys. Vol. 37 (1998), pp. 2929-2932.
3.		K. Yamanouchi, et al. "Theoretical and experimental study of super-high electromechanical coupling surface acoustic wave propagation in KNbO <sub>3</sub> single crystal" Electronic Letters, Vol. 33, No. 3, pp. 193-194 (30th January 1997)
4.		Jun KOIKE, et al. "1.5 GHz Low-Loss Surface Acoustic Wave Filter Using ZnO/Sapphire Substrate" Jpn. J. Appl. Phys. Vol. 32 (1993) pp. 2337-2340 (May, 1993).

Examiner:	Date Considered:
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EXAMINER: Please initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<b>FORM HDP-1449 (Based on Form PTO-1449)</b>  <b>PATENT AND TRADEMARK OFFICE</b> <b>INFORMATION DISCLOSURE CITATION</b> (Use several sheets if necessary)  Sheet 2 of 2	ATTORNEY DOCKET NO.	SERIAL NO.
	9319G-000747	N/A
	APPLICANT	
	Takamitsu HIGUCHI	
	FILING DATE	GROUP
	Herewith	N/A

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, etc.)		
Ref. Desig.	Examiner's Initials	
5.		Yoshihiko SHIBATA, et al. "Expitaxial Growth of LiNbO <sub>3</sub> Films on Sapphire Substrates by Excimer Laser Ablation Method and Their Surface Acoustic Wave Properties" Jpn. J. Appl. Phys. Vol. 32 (1993) pp. L745-L747.

Examiner:	Date Considered:
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EXAMINER: Please initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.